CLAIMS

1. A method of eliciting a Raman signal from a living cell, or a plurality of living cells, said method comprising irradiating the cell with a laser having a wavelength of 785 ± 60 nm.

2. A method according to claim 1 comprising irradiating the cell with a laser having a wavelength of 785 ± 20 nm.

3. A method according to claim 1 or claim 2 wherein the cell is exposed to a total energy of at least about 20 Joules.

4. A method according to any preceding claim wherein the cell is exposed to a total energy of at least about 100 Joules.

5. A method according to any preceding claim wherein the cell is exposed to a total energy of at least about 200 Joules.

6. A method according to any preceding claim wherein the cell is exposed to a total energy of at least 275 Joules.

7. A method according to any preceding claim wherein the cell is irradiated at an intensity of 115 ± 50 mW.

8. A method according to any one of claims 1 to 6 wherein the cell is irradiated at an intensity of 120 ± 60 mW.

9. A method according to any preceding claim wherein the cell is irradiated for a period of up to 40 minutes.

10. A method according to any preceding claim wherein the laser is focussed within the cytoplasm of the cell.

11. A method according to any one of claims 1 to 9 wherein the laser is focussed within the nucleus of the cell.

12. A method according to any one of claims 1 to 9 wherein the laser is focussed within the extracellular matrix.

13. A method according to any preceding claim wherein the cell is cultured on a bioinert material.

14. A method according to claim 13 wherein the bioinert material is poly-L-lysine coated fused silica.

15. A method according to any preceding claim wherein the cell is cultured on a bioactive scaffold.

16. A method according to any one of claims 1 to 12 wherein the cell is cultured on an uncoated bioactive glass or a sol-gel derived gel glass.

17. A method of detecting changes in a living cell or a plurality of living cells, said method comprising the steps of:

(i) eliciting a Raman signal in accordance with any one of claims 1 to 16; and

(ii) measuring changes in the Raman signal over a period of time.

18. A method according to claim 17 for detecting changes in the cell phenotype.

19. A method according to claim 17 for monitoring cell growth.

20. A method according to claim 17 for detecting changes in a living cell induced by a pharmaceutical agent or a cytotoxic agent.

21. A method according to any one of claims 17 to 20 for detecting changes in protein levels.

22. A method according to any one of claims 17 to 20 for detecting changes in DNA or RNA levels.

23. A method according to any one of claims 17 to 20 for detecting changes in the extracellular matrix.

24. A method according to any preceding claim for detecting the cell cycle of a living cell.

25. A method according to any preceding claim for detecting changes in the cell cycle of a living cell.

26. A method according to any preceding claim for detecting the onset of cell death by apoptosis.

27. A method according to any preceding claim for detecting the onset of cell death by necrosis.

28. Use of a laser having a wavelength of 785 ± 60 nm to elicit a Raman signal in a living cell or a plurality of living cells.

29. Use according to claim 28 wherein the laser has a wavelength of 785 ± 20 nm.